europass Curriculum vitae

PERSONAL INFORMATION

Antonio Ragagnin

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aragagnin.github.io

Date of birth 05/11/1988 | Nationality Italian

SCIENTIFIC INTERESTS

- Galaxy clusters and their dark matter haloes, impact of baryons in the mass-concentration relations and BCG optical properties (Ragagnin et al. 2019)
- Cosmological parameters, and their impact on halo mass, concentration, sparsities (Ragagnin et al. 2021) and satellite properties (Ragagnin et al. 2023)
- The impact of AGN baryon physics on the strong lensing signal of galaxy clusters (Ragagnin et al. 2022a)
- The origin of low X-ray surface brightness galaxy clusters (Ragagnin et al. 2022b)
- Self-interacting dark matter (Ragagnin et al. 2024)
- The impact of projection effects in possible future multi-wavelength observations comining Euclid data together with X-ray and SZ data (Euclid Collaboration: Ragagnin et al. 2025)
- Big data, web visualization, web portals, and archives for large astrophysical datasets (see e.g., Ragagnin et al. 2017).
- I am capable of managing an entire pipeline for cosmological hydrodynamical simulations: from code development (see e.g., Ragagnin et al. 2020 for my GPU porting of Gadget) within simulation frameworks, to writing computational proposals for large-scale computing time, to running campaigns of cosmological hydrodynamical simulations (see e.g., Ragaginn et al. 2024). I can consistently analyze simulated data in comparison with observations, thanks to my extensive collaborations with observational groups (e.g., the Euclid consortium, see Euclid Consortium: Ragagnin et al. 2025).

SCIENTIFIC ACTIVITIES

01/04/2025 – 31/03/2026 **Postdoc at INAF OATs**

01/02/2024 – 31/03/2025 **Fixed term staff researcher at INAF OAS**

01/04/2023 – 31/01/2024 **Postdoc (Assegno di Ricerca) at INAF OAS**

01/08/2023 – 11/08/2023 **Visiting Dr. Klaus Dolag at LMU (Munich)**

01/04/2022 – 31/04/2022 **Visiting LMU (Munich) with grants HPC-Europa3 (HPC17YMAKH)**

01/04/2021 – 31/03/2023 **Postdoc (Assegno di Ricerca) at Università di Bologna**

01/04/2019 – 31/03/2021 **Postdoc (Assegno di Ricerca) at INAF OATs**

01/01/2019 – 31/03/2019 **Postdoc at Leibniz Supercomputing Centre (LRZ)**

01/10/2014 – 31/12/2018

PhD fellowship

Ph.D. program as part of the International Max Planck Research School (IMPRS) on Astrophysics, in collaboration between Ludwig-Maximilians-Universität (LMU), LRZ supercomputing centre, and the Excellence Cluster Universe (`https://www.universe-cluster.de/`).

11/06/2018 – 16/06/2018

Visiting Dr. Claudio Gheller at CSCS (Switzerland)

Other experiences

I worked from September 2007 to December 2007 as a junior system administrator for Sinterim Spa at Cimolai Spa, from February 2008 to August 2008 as a PHP programmer for Manifattura Web Srl, and from January 2014 to August 2014 as a Java programmer for ZConsultancies.

EDUCATION AND TRAINING

18/12/2018

PhD Title (magna cum laude)

Thesis “From the mass-concentration relation of haloes to GPUs and into the web: a guide on fully utilizing super computers for the largest, cosmological hydrodynamic simulations”, at University Ludwig-Maximilians-Universität (LMU) München, supervisor: Dr. (ora Prof.) Klaus Dolag.

Repository: `https://edoc.ub.uni-muenchen.de/23521/`

21/11/2013

Master degree in Theoretical Physics (Grade: 110/110 cum laude)

University of Trieste (Italy)

20/07/2011

Bachelor degree in Physics (Grade: 110/110)

University of Trieste (Italy)

REFEREE

2022 Referee for MNRAS

2022 Referee for Astronomy & Computing

2025 Referee for finanziamenti Chilean FONDECYT

2025 Referee for valutazione scientifica finanziamenti Swiss National Science Foundation (SNSF)

TEACHING ACTIVITIES

22-26/09/2025

HPC tutor class

INAF Course in Computing and High Performance Computing `https://indico.ict.inaf.it/event/3227/`

I semester 2020/2021

Lab assistant

Foundation of HPC class of High Performance Computing SISSA/ICTP master

I semester 2021/2022

Lab assistant

Advanced lab. for programming in physics at Physics department of University of Trieste

CONFERENCES AND MEETINGS

28-31/07/2025 Talk on Hydrosim meeting (Trieste, Italy)

03-07/02/2025 Invited to IFPU focus week: Substructures in multiscale host haloes: from Galaxies to Clusters (Italy)

28/06/2024 Talk on SIEGE simulations on "A lens on globular cluster nurseries", Sexten (Italy)

23/01/2024 Talk on my Euclid first author paper @ Euclid Cluster of Galaxies SWG meeting, Innsbruck

26/19/2023	Talk "Feedback and resolution do not improve the low lensing signal of simulated cluster cores " @ online Yale seminar "DM on small scales", PI Priyanka Natarajan
31/07/2023	Talk "Velocity dependent SIDM effects on galaxy cluster strong-lensing signals" @ Munich Observatory (USM)
19/06/2023 – 30/06/2023	Self-interacting dark matter meeting (Pollica) talk "Velocity dependent SIDM effects on galaxy cluster strong-lensing signals"
02/2023	Talk @ Euclid Galaxy Clusters SWG meeting in Bologna
02/2023	INAF-OAS colloquium seminar "Strong-lensed galaxies in simulated and observed galaxy clusters"
24/01/2023 – 26/01/2023	Zooming PRIN workshop “A golden era for strong gravitational lensing: new data, modelling and applications”, Milano
09/2023	Talk "Galaxies in the central regions of simulated galaxy clusters" @ CLUSTER3, Bologna
07/2022	Invited talk "Galaxies in the central regions of simulated galaxy clusters" @ RAS National Astronomy Meeting (NAM, University of Warwick, UK)
07/2022	Talk "Galaxies in the central regions of simulated galaxy clusters" @ Cosmology From Home
2020	NVIDIA virtual Hackaton @ CSC
2020	Invited talk "Bringing Zoom-In Initial Conditions of Cosmological Simulations on GPUs" @ OpenACC Summit (virtual)
01/2020	HydroSim meeting (hydrodynamic simulation meeting, Munich) @ Munich Observatory
2019	Talk "Gadget3 on GPUs with OpenACC" @ ParCo (Prague)
2018	Invited poster "Gadget3 (N-Body gravity + SPH) on GPUs" @ GPU Technology Conference (GTC, Munich)
2017	Invited poster "A web portal for large cosmological simulation data" @ EnviroInfo (Munich)
2017	EuroHack OpenACC workshop @ CSCS Lugano
2016	Poster "A multi node Barnes Hut solver on GPUs for Gadget3" @ Perspectives of GPU in science (Rome)
2016	Talk @ HydroSim workshop (Trieste)
2016	Talk "A web interface to federalize the outcome of large, cosmological, hydrodynamic simulations" @ Astronomical Data Analysis Software and Systems (ADASS, Trieste)
2015	Talk "Exploiting the Space Filling Curve Ordering of Particles in the Neighbour Search of Gadget3" @ International Conference on Parallel Computing (ParCo, Edinburgh)

COLLABORATIONS

Member of Euclid Consortium

Member of Euclid Clusters of Galaxies Science Working Group

Member of Observable-Mass relation Euclid key-project

Member of Dianoga simulations (PIs Klaus Dolag, Elena Rasia, Stefano Borgani)

Member of Magneticum (PI Klaus Dolag)

Member of Darkium on Self-Interacting Dark Matter (PI Moritz Fisher)

Member of OpenGadget3 developer team (PI Klaus Dolag)

COMPUTING RESOURCES

12/2025	PI CINECA IscraB on SIDM simulatons (IscrB_SIDMCC) of 2 725 000 hours on Leonardo DCGP
08/2024	PI EuroHPC regular (EHPC-REG-2024R01-029) of 84 000 node hours on Leonardo at CINECA
08/2023	PI CINECA Iscra C (IsCb1 openaccg)
08/2023	PI EuroHPC Benchmark Call (EHPC-BEN-2023B08-013) 3500 Leonardo Booster node hours
2023	PI PLEIADI Bologna project "SIDM vs CDM 2" 400 000 CPU hours
2022	Collaboratore CINECA account LEAP 041 (PI Dr. Milena Valentini) 100 000 CPU hours

2023 Collaboratore INAF computing time account INA23 C9B06 (PI Dr. Elena Rasia) 550 000 CPU hours

2022 PI PLEIADI Trieste project "SIDM vs CDM" 466 000 CPU hours

2022 Collaboratore CINECA Iscra B account IsB24 HRCLUS (PI Dr. Luca Tornatore) 704 000 CPU hours

2021 Collaboratore INAF computing time INA21 C8A63 (PI Dr. Tiago Castro) 480 000 CPU hours

2021 Collaboratore CINECA Iscra B IsB22 ECOCLUS (PI Dr. Giuseppe Murante) 750 000 CPU hours

2020 Collaboratore INAF computing time INA20 C7A68 (PI Dr. Elena Rasia) 400 000 CPU hours

2019 Collaboratore CINECA Iscra B IsB18 SimClus (PI Prof. Stefano Borgani) 500 000 CPU hours

2017 Collaboratore INAF computing time INA17 C5A46 (PI Prof. Stefano Borgani) 186 000 CPU hours

SOFTWARE

g3read A Python library to read and write Gadget2-3 snapshots, halo catalogs and matches: `https://github.com/aragagnin/g3read`

cosmo web portal This unique data center for cosmological simulations provides access to the Magneticum results (PI: Prof. Klaus Dolag). It offers a graphical interface to compose complex queries, select objects, and simulate telescopes. App URL: `https://c2papcosmosim.uc.lrz.de/`

HydroMC A library to convert between halo mass and concentration of galaxy clusters at different over-densities ($\Delta =$ vir, 200c, 500c, 2500c) and cosmological parameters $\Omega_m, \Omega_b, \sigma_8, h_0$, based on the Magneticum simulations. `https://github.com/aragagnin/hydro_mc`

Gadget3 on GPU I ported the gravitational, hydrodynamical, and thermal conduction solvers of (Open)Gadget3 to GPUs using OpenACC; see Ragagnin et al. (2020).

hotwheels As part of my commitment to improving simulation tools, I am developing a flexible and modular implementation of a Gadget-like code, incorporating more than 10 years of lessons learned while working closely with HPC facilities and GPU vendors. Repository: `https://www.ict.inaf.it/gitlab/hotwheels`

PERSONAL SKILLS

Mother tongue Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
	Self evaluation				
English	C1	C2	C1	C1	C2
Deutsch	A1	A1	A1	A1	A1

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
Common European Framework of Reference for Languages

Digital Skills Windows, Microsoft Office, Microsoft Excel, HTML, CSS, Javascript, Linux, HPC, C/C++, Python, MPI, OpenMP, OpenACC, P-Gadget, SUBFIND

PUBLICATIONS

[1] F. Calura, R. Pascale, O. Agertz, E. Andersson, E. Lacchin, A. Lupi, M. Meneghetti, C. Nipoti, **A. Ragagnin**, J. Rosdahl, E. Vanzella, E. Vesperini, and A. Zanella. “SIEGE: III. The formation of dense stellar clusters in sub-parsec resolution cosmological simulations with individual star feedback”. In: *Astronomy and Astrophysics* 698, A207 (June 2025), A207. arXiv: `2411.02502 [astro-ph.GA]`.

[2] R. Pascale, F. Calura, E. Vesperini, J. Rosdahl, C. Nipoti, E. Giunchi, E. Lacchin, A. Lupi, M. Messa, M. Meneghetti, **A. Ragagnin**, E. Vanzella, and A. Zanella. “SIEGE: IV. Compact star clusters in cosmological simulations with a high star formation efficiency and subparsec resolution”. In: *Astronomy and Astrophysics* 699, A31 (June 2025), A31. arXiv: 2505.06346 [astro-ph.GA].

[3] E. Giunchi, F. Marinacci, C. Nipoti, A. Claeyssens, R. Pascale, F. Calura, and **A. Ragagnin**. “The dynamical evolution of the stellar clumps in the Sparkler galaxy”. In: *Astronomy and Astrophysics* 701, A129 (Sept. 2025), A129. arXiv: 2507.13904 [astro-ph.GA].

[4] Euclid Collaboration, **A. Ragagnin**, A. Saro, S. Andreon, A. Biviano, K. Dolag, S. Ettori, C. Giocoli, A. M. C. Le Brun, G. A. Mamon, B. J. Maughan, M. Meneghetti, L. Moscardini, F. Pacaud, G. W. Pratt, M. Sereno, and S. Borgani et al. “Euclid preparation: LXVI. Impact of line-of-sight projections on the covariance between galaxy cluster multi-wavelength observable properties: insights from hydrodynamic simulations”. In: *Astronomy and Astrophysics* 695, A282 (Mar. 2025), A282.

[5] Euclid Collaboration, G. Rácz, M. -A. Breton, B. Fiorini, A. M. C. Le Brun, H. -A. Winther, Z. Sakr, L. Pizzuti, **A. Ragagnin**, T. Gayoux, E. Altamura, E. Carella, K. Pardede, G. Verza, K. Koyama, M. Baldi, A. Pourtsidou, and F. Vernizzi et al. “Euclid preparation: LXIII. Simulations and non-linearities beyond Lambda cold dark matter. 2. Results from non-standard simulations”. In: *Astronomy and Astrophysics* 695, A232 (Mar. 2025), A232. arXiv: 2409.03523 [astro-ph.CO].

[6] Alice Damiano, Milena Valentini, Stefano Borgani, Luca Tornatore, Giuseppe Murante, **Antonio Ragagnin**, Cinthia Ragone-Figueroa, and Klaus Dolag. “Dynamical friction and the evolution of black holes in cosmological simulations: A new implementation in OpenGadget3”. In: *Astronomy and Astrophysics* 692, A81 (Dec. 2024), A81. arXiv: 2403.12600 [astro-ph.CO].

[7] Martin W. Sommer, Tim Schrabback, **Antonio Ragagnin**, and Robert Rockenfeller. “Weak lensing mass bias and the alignment of centre proxies”. In: *Monthly Notices of the RAS* 532.3 (Aug. 2024), pp. 3359–3374. arXiv: 2306.13187 [astro-ph.CO].

[8] **A. Ragagnin**, M. Meneghetti, F. Calura, G. Despali, K. Dolag, M. S. Fischer, C. Giocoli, and L. Moscardini. “Dianoga SIDM: Galaxy cluster self-interacting dark matter simulations”. In: *Astronomy and Astrophysics* 687, A270 (July 2024), A270. arXiv: 2404.01383 [astro-ph.CO].

[9] Euclid Collaboration, T. Castro, S. Borgani, M. Costanzi, J. Dakin, K. Dolag, A. Fumagalli, **A. Ragagnin**, A. Saro, A. M. C. Le Brun, and N. Aghanim et al. “Euclid preparation. XXXIX. The effect of baryons on the halo mass function”. In: *Astronomy and Astrophysics* 685, A109 (May 2024), A109. arXiv: 2311.01465 [astro-ph.CO].

[10] Moritz S. Fischer, Lenard Kasselmann, Marcus Brüggen, Klaus Dolag, Felix Kahlhoefer, **Antonio Ragagnin**, Andrew Robertson, and Kai Schmidt-Hoberg. “Cosmological and idealized simulations of dark matter haloes with velocity-dependent, rare and frequent self-interactions”. In: *Monthly Notices of the RAS* 529.3 (Apr. 2024), pp. 2327–2348. arXiv: 2310.07750 [astro-ph.CO].

[11] Atulit Srivastava, Weiguang Cui, Massimo Meneghetti, Romeel Dave, Alexander Knebe, **Antonio Ragagnin**, Carlo Giocoli, Francesco Calura, Giulia Despali, Lauro Moscardini, and Gustavo Yepes. “The Three Hundred: M_{sub}-V_{circ} relation”. In: *Monthly Notices of the RAS* 528.3 (Mar. 2024), pp. 4451–4465.

[12] G. Granata, P. Bergamini, C. Grillo, M. Meneghetti, A. Mercurio, U. Meštrić, **A. Ragagnin**, P. Rosati, G. B. Caminha, L. Tortorelli, and E. Vanzella. “Exploring the low-mass regime of galaxy-scale strong lensing: Insights into the mass structure of cluster galaxies”. In: *Astronomy and Astrophysics* 679, A124 (Nov. 2023), A124. arXiv: 2310.02310 [astro-ph.GA].

[13] Massimo Meneghetti, Weiguang Cui, Elena Rasia, Gustavo Yepes, Ana Acebron, Giuseppe Angora, Pietro Bergamini, Stefano Borgani, Francesco Calura, Giulia Despali, Carlo Giocoli, Giovanni Granata, Claudio Grillo, Alexander Knebe, Andrea V. Macciò, Amata Mercurio, Lauro Moscardini, Priyamvada Natarajan, **Antonio Ragagnin**, Piero Rosati, and Eros Vanzella. "A persistent excess of galaxy-galaxy strong lensing observed in galaxy clusters". In: *Astronomy and Astrophysics* 678, L2 (Oct. 2023), p. L2. arXiv: 2309.05799 [astro-ph.CO].

[14] Atulit Srivastava, Weiguang Cui, Massimo Meneghetti, Romeel Dave, Alexander Knebe, **Antonio Ragagnin**, Carlo Giocoli, Francesco Calura, Giulia Despali, Lauro Moscardini, and Gustavo Yepes. "The Three Hundred: $M_{sub} - V_{circ}$ relation". In: *arXiv e-prints*, arXiv:2309.06187 (Sept. 2023), arXiv:2309.06187. arXiv: 2309.06187 [astro-ph.GA].

[15] M. Angelinelli, S. Ettori, K. Dolag, F. Vazza, and **A. Ragagnin**. "Redshift evolution of the baryon and gas fraction in simulated groups and clusters of galaxies". In: *Astronomy and Astrophysics* 675, A188 (July 2023), A188. arXiv: 2305.09733 [astro-ph.CO].

[16] **A. Ragagnin**, A. Fumagalli, T. Castro, K. Dolag, A. Saro, M. Costanzi, and S. Bocquet. "Dependency of high-mass satellite galaxy abundance on cosmology in Magneticum simulations". In: *Astronomy and Astrophysics* 675, A77 (July 2023), A77. arXiv: 2110.05498 [astro-ph.CO].

[17] Euclid Collaboration, T. Castro, A. Fumagalli, R. E. Angulo, S. Bocquet, S. Borgani, C. Carbone, J. Dakin, K. Dolag, C. Giocoli, P. Monaco, **A. Ragagnin**, A. Saro, and E. Sefusatti et al. "Euclid preparation. XXIV. Calibration of the halo mass function in $\Lambda(\nu)$CDM cosmologies". In: *Astronomy and Astrophysics* 671, A100 (Mar. 2023), A100. arXiv: 2208.02174 [astro-ph.CO].

[18] Milena Valentini, Klaus Dolag, Stefano Borgani, Giuseppe Murante, Umberto Maio, Luca Tornatore, Gian Luigi Granato, Cinthia Ragone-Figueroa, Andreas Burkert, **Antonio Ragagnin**, and Elena Rasia. "Impact of H_2-driven star formation and stellar feedback from low-enrichment environments on the formation of spiral galaxies". In: *Monthly Notices of the RAS* 518.1 (Jan. 2023), pp. 1128–1147. arXiv: 2207.13710 [astro-ph.GA].

[19] Massimo Meneghetti, **Antonio Ragagnin**, Stefano Borgani, Francesco Calura, Giulia Despali, Carlo Giocoli, Gian Luigi Granato, Claudio Grillo, Lauro Moscardini, Elena Rasia, Piero Rosati, Giuseppe Angora, Luigi Bassini, Pietro Bergamini, Gabriel B. Caminha, Giovanni Granata, Amata Mercurio, Robert Benton Metcalf, Priyamvada Natarajan, Mario Nonino, Giada Venusta Pignataro, Cinthia Ragone-Figueroa, Eros Vanzella, Ana Acebron, Klaus Dolag, Giuseppe Murante, Giuliano Taffoni, Luca Tornatore, Luca Tortorelli, and Milena Valentini. "The probability of galaxy-galaxy strong lensing events in hydrodynamical simulations of galaxy clusters". In: *Astronomy and Astrophysics* 668, A188 (Dec. 2022), A188. arXiv: 2204.09065 [astro-ph.CO].

[20] Moritz S. Fischer, Marcus Brüggen, Kai Schmidt-Hoberg, Klaus Dolag, Felix Kahlhoefer, **Antonio Ragagnin**, and Andrew Robertson. "Cosmological simulations with rare and frequent dark matter self-interactions". In: *Monthly Notices of the RAS* 516.2 (Oct. 2022), pp. 1923–1940. arXiv: 2205.02243 [astro-ph.CO].

[21] **A. Ragagnin**, S. Andreon, and E. Puddu. "Simulation view of galaxy clusters with low X-ray surface brightness". In: *Astronomy and Astrophysics* 666, A22 (Oct. 2022), A22. arXiv: 2208.02827 [astro-ph.CO].

[22] **Antonio Ragagnin**, Massimo Meneghetti, Luigi Bassini, Cinthia Ragone-Figueroa, Gian Luigi Granato, Giulia Despali, Carlo Giocoli, Giovanni Granata, Lauro Moscardini, Pietro Bergamini, Elena Rasia, Milena Valentini, Stefano Borgani, Francesco Calura, Klaus Dolag, Claudio Grillo, Amata Mercurio, Giuseppe Murante, Priyamvada Natarajan, Piero Rosati, Giuliano Taffoni, Luca Tornatore, and Luca Tortorelli. "Galaxies in the central regions of simulated galaxy clusters". In: *Astronomy and Astrophysics* 665, A16 (Sept. 2022), A16. arXiv: 2204.09067 [astro-ph.CO].

[23] V. Marra, T. Castro, D. Camarena, S. Borgani, and **A. Ragagnin**. “The BEHOMO project: Λ Lemaitre-Tolman-Bondi N-body simulations”. In: *Astronomy and Astrophysics* 664, A179 (Aug. 2022), A179. arXiv: 2203.04009 [astro-ph.CO].

[24] M. Angelinelli, S. Ettori, K. Dolag, F. Vazza, and **A. Ragagnin**. “Mapping ‘out-of-the-box’ the properties of the baryons in massive halos”. In: *Astronomy and Astrophysics* 663, L6 (July 2022), p. L6. arXiv: 2206.08382 [astro-ph.GA].

[25] Moritz S. Fischer, Marcus Brüggen, Kai Schmidt-Hoberg, Klaus Dolag, **Antonio Ragagnin**, and Andrew Robertson. “Unequal-mass mergers of dark matter haloes with rare and frequent self-interactions”. In: *Monthly Notices of the RAS* 510.3 (Mar. 2022), pp. 4080–4099. arXiv: 2109.10035 [astro-ph.CO].

[26] I. Marini, S. Borgani, A. Saro, G. L. Granato, C. Ragone-Figueroa, B. Sartoris, K. Dolag, G. Murante, **A. Ragagnin**, and Y. Wang. “Velocity dispersion of brightest cluster galaxies in cosmological simulations”. In: *Monthly Notices of the RAS* 507.4 (Nov. 2021), pp. 5780–5795. arXiv: 2109.00223 [astro-ph.GA].

[27] S. Andreon, C. Romero, F. Castagna, **A. Ragagnin**, M. Devlin, S. Dicker, B. Mason, T. Mroczkowski, C. Sarazin, J. Sievers, and S. Stanchfield. “Thermodynamic evolution of the z = 1.75 galaxy cluster IDCS J1426.5+3508”. In: *Monthly Notices of the RAS* 505.4 (Aug. 2021), pp. 5896–5909. arXiv: 2106.11327 [astro-ph.CO].

[28] Moritz S. Fischer, Marcus Brüggen, Kai Schmidt-Hoberg, Klaus Dolag, Felix Kahlhoefer, **Antonio Ragagnin**, and Andrew Robertson. “N-body simulations of dark matter with frequent self-interactions”. In: *Monthly Notices of the RAS* 505.1 (July 2021), pp. 851–868. arXiv: 2012.10277 [astro-ph.CO].

[29] **Antonio Ragagnin**, Alexandro Saro, Priyanka Singh, and Klaus Dolag. “Cosmology dependence of halo masses and concentrations in hydrodynamic simulations”. In: *Monthly Notices of the RAS* 500.4 (Jan. 2021), pp. 5056–5071. arXiv: 2011.05345 [astro-ph.CO].

[30] I. Marini, A. Saro, S. Borgani, G. Murante, E. Rasia, K. Dolag, W. Lin, N. R. Napolitano, **A. Ragagnin**, L. Tornatore, and Y. Wang. “On the phase-space structure of galaxy clusters from cosmological simulations”. In: *Monthly Notices of the RAS* 500.3 (Jan. 2021), pp. 3462–3480. arXiv: 2007.05199 [astro-ph.CO].

[31] L. Bassini, E. Rasia, S. Borgani, G. L. Granato, C. Ragone-Figueroa, V. Biffi, **A. Ragagnin**, K. Dolag, W. Lin, G. Murante, N. R. Napolitano, G. Taffoni, L. Tornatore, and Y. Wang. “The DIANOGA simulations of galaxy clusters: characterising star formation in protoclusters”. In: *Astronomy and Astrophysics* 642, A37 (Oct. 2020), A37. arXiv: 2006.13951 [astro-ph.GA].

[32] **Antonio Ragagnin**, Klaus Dolag, Mathias Wagner, Claudio Gheller, Conradin Roffler, David Goz, David Hubber, and Alexander Arth. “Gadget3 on GPUs with OpenACC”. In: *arXiv e-prints*, arXiv:2003.10850 (Mar. 2020), arXiv:2003.10850. arXiv: 2003.10850 [astro-ph.IM].

[33] David Goz, Georgios Ieronymakis, Vassilis Papaefstathiou, Nikolaos Dimou, Sara Bertocco, Francesco Simula, **Antonio Ragagnin**, Luca Tornatore, Igor Coretti, and Giuliano Taffoni. “Performance and Energy Footprint Assessment of FPGAs and GPUs on HPC Systems Using Astrophysics Application”. In: *Computation* 8.2 (2020). URL: https://www.mdpi.com/2079-3197/8/2/34.

[34] E. Rasia, L. Bassini, M. Valentini, V. Biffi, S. Borgani, K. Dolag, G. L. Granato, G. Murante, **A. Ragagnin**, C. Ragone-Figueroa, G. Taffoni, and L. Tornatore. “Star formation rate in simulated clusters”. In: *Mem. Societa Astronomica Italiana* 91 (Jan. 2020), p. 332.

[35] C. Chaitra, S. Bertocco, M. Molinaro, S. Molinari, **A. Ragagnin**, and G. Taffoni. “Exposing SED Models And Snapshots Via VO Simulation Artefacts”. In: *Astronomical Data Analysis Software and Systems XXIX*. Ed. by R. Pizzo, E. R. Deul, J. D. Mol, J. de Plaa, and H. Verkouter. Vol. 527. Astronomical Society of the Pacific Conference Series. Jan. 2020, p. 363.

[36] S. Bertocco, D. Goz, L. Tornatore, **A. Ragagnin**, G. Maggio, F. Gasparo, C. Vuerli, G. Taffoni, and M. Molinaro. “INAF Trieste Astronomical Observatory Information Technology Framework”. In: *Astronomical Data Analysis Software and Systems XXIX*. Ed. by R. Pizzo, E. R. Deul, J. D. Mol, J. de Plaa, and H. Verkouter. Vol. 527. Astronomical Society of the Pacific Conference Series. Jan. 2020, p. 303. arXiv: 1912.05340 [astro-ph.IM].

[37] D. Goz, G. Ieronymakis, V. Papaefstathiou, N. Dimou, S. Bertocco, **A. Ragagnin**, L. Tornatore, G. Taffoni, and I. Coretti. “Direct N-Body Application on Low-Power and Energy-Efficient Parallel Architectures”. In: *Parallel Computing: Technology Trends, Proceedings of the International Conference on Parallel Computing, PARCO 2019, Prague, Czech Republic, September 10-13, 2019*. Ed. by Ian T. Foster, Gerhard R. Joubert, Ludek Kucera, Wolfgang E. Nagel, and Frans J. Peters. Vol. 36. Advances in Parallel Computing. IOS Press, 2019, pp. 583–592. URL: https://doi.org/10.3233/APC200088.

[38] **Antonio Ragagnin**, Klaus Dolag, Lauro Moscardini, Andrea Biviano, and Mauro D’Onofrio. “Dependency of halo concentration on mass, redshift and fossilness in Magneticum hydrodynamic simulations”. In: *Monthly Notices of the RAS* 486.3 (July 2019), pp. 4001–4012. arXiv: 1810.08212 [astro-ph.CO].

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